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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,336	09/16/2003	Dirk Weichholdt	09194-US	3781

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DEERE & COMPANY
ONE JOHN DEERE PLACE
MOLINE, IL 61265

EXAMINER

ILAN, RUTH

ART UNIT	PAPER NUMBER
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3616

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/663,336	Applicant(s) WEICHHOLDT, DIRK	
	Examiner Ruth Ilan	Art Unit 3616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,6,7,12,13 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,6,7,12,13 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/11/06 has been entered.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 6, 7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hurlburt et al. (US 6,267,198.) in view of Stracke et al. (DE 8902158) and Abbott/Hinerman (Suspension and Steering Glencoe Automotive Technology Series 2nd edition, pages 299-302 and 305/306) and further in view of Reilly (US 4,953,889.) Hurlburt et al. teaches a rear steer axle on a combine (20) that includes a wheel (37) rotatably supported on a wheel carrier (35,43) that is supported on a pivot support that includes a yoke (42) with upper and lower arms (see Figure 3) that define two mounting points that are offset forward of the rotational axis of the rear wheels (see Figure 2 and abstract.) Regarding claims 7 and 12, Hurlburt et al. does not teach that the pivot axis is inclined toward the longitudinal central plane of the combine. Stracke et al. teaches (Figures 1 and 2) a steering axle with an offset pivot axis, similar to the steering axle

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disclosed by Hurlburt et al., and further teaches that the pivot axis (at 15) is inclined toward the longitudinal center line of the vehicle. Abbott/Hinerman (p 305, 306) teaches that an inclined steering angle is useful because it reduces the need for excessive caster and camber angles, distributes the weight of the vehicle more nearly under the road contact of the tire and provides for ease of steering. It would have been obvious to one having ordinary skill in the art at the time of the invention, in view of the teaching of Stracke et al. and Abbott/Hinerman to modify the steering axle of Hurlburt et al. to include an inwardly inclined pivot axis, in order to distribute the weight of the vehicle and provide for ease of steering. Regarding claims 1 and 6 Hurlburt et al. fails to teach positive caster, that is, as claimed, the pivot axis inclined rearward relative to the forward driving direction. Positive caster, as taught by Abbott/Hinerman, is a well known steering geometry technique that is used to ease steering by providing a geometry that helps to return the steered wheel to its straight ahead position (see p 300.) It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the pivot axis of Hurlburt et al. to include a pivot axis inclined rearward relative to the forward driving direction in order to provide positive caster and help ease steering. Regarding claims 1 and 7, as amended in the RCE of 9/11/06, the limitation of the caster angle of the left and right rear wheels being equivalent, Abbott/Hinerman teaches the desirability of such a geometry (see page 302, paragraph 3, item 1) and teaches that using equivalent caster avoids the vehicle pulling to one side, that is the side with the most negative caster. It is also noted that the Figures of Hurlburt et al. and Stracke et al. appear to disclose equivalent caster. It would have been obvious to one having

ordinary skill in the art at the time of the invention, in view of the teaching of Abbott/Hinerman to include equivalent caster angles for the left and right wheels, in order to avoid the vehicle pulling to one side during travel along flat ground. Hurlburt et al. in view of Stracke et al. and Abbott/Hinerman fails to teach that the angle of the rotational axis of the rear wheels is arranged so that upper side of the rear wheel is situated farther outward than the lower edge (positive camber.) Camber is a well known steered wheel alignment geometry concern that is used to prevent undue tire wear. Reilly teaches that it is known to tilt the steered wheels of vehicles outwardly (see Figure 3b) and that such a geometry is especially useful on steered wheels since much of the load of the vehicle is carried by the steered wheels (see col. 1, lines 5-30.) It would have been obvious to one having ordinary skill in the art at the time of the invention to include positive camber with the vehicle of Hurlburt et al. in view of Stracke et al. and Abbott/Hinerman, in view of the teaching of Reilly, in order to prevent undue tire wear, and ease of steering.

Claims 13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hurlburt et al. (US 6,267,198) in view of Abbott/Hinerman (Suspension and Steering Glencoe Automotive Technology Series 2nd edition, page 299-302) and further in view of Reilly (US 4,953,889.) Hurlburt et al. teaches a rear steer axle on a combine (20) that includes a wheel (37) rotatably supported on a wheel carrier (35,43) that is supported on a pivot support that includes a yoke (42) with upper and lower arms (see Figure 3) that define two mounting points that are offset forward of the rotational axis of the rear wheels (see Figure 2 and abstract.) Hurlburt et al. fails to teach positive caster, that is,

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as claimed, the pivot axis inclined rearward relative to the forward driving direction.

Positive caster, as taught by Abbott/Hinerman, is a well known steering geometry technique that is used to ease steering by providing a geometry that helps to return the steered wheel to its straight ahead position (see p 300.) It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the pivot axis of Hurlburt et al. to include a pivot axis inclined rearward relative to the forward driving direction in order to provide positive caster and help ease steering. Regarding claims 1 and 7, as amended in the RCE of 9/11/06, the limitation of the caster angle of the left and right rear wheels being equivalent, Abbott/Hinerman teaches the desirability of such a geometry (see page 302, paragraph 3, item 1) and teaches that using equivalent caster avoids the vehicle pulling to one side, that is the side with the most negative caster. It would have been obvious to one having ordinary skill in the art at the time of the invention, in view of the teaching of Abbott/Hinerman to include equivalent caster angles for the left and right wheels, in order to avoid the vehicle pulling to one side during travel along flat ground. Hurlburt et al. in view of Abbott/Hinerman fails to teach that the angle of the rotational axis of the rear wheels is arranged so that upper side of the rear wheel is situated farther outward than the lower edge (positive camber.)

Camber is a well known steered wheel alignment geometry concern that is used to prevent undue tire wear. Reilly teaches that it is known to tilt the steered wheels of vehicles outwardly (see Figure 3b) and that such a geometry is especially useful on steered wheels since much of the load of the vehicle is carried by the steered wheels (see col. 1, lines 5-30.) It would have been obvious to one having ordinary skill in the art

at the time of the invention to include positive camber with the vehicle of Hurlburt et al. in view of Abbott/Hinerman, in view of the teaching of Reilly, in order to prevent undue tire wear, and ease of steering.

Response to Arguments

4. Applicant's arguments filed 9/11/06 have been fully considered but they are not persuasive. The Applicant argues that Abbott teaches that the caster angle must be different in order to ease the vehicle steering. (Examiner's emphasis.) The Examiner respectfully disagrees. Abbott addresses the possibility of difference in caster angle, if the vehicle is going to be driven on highways with a crown. However, Abbott does not say that the caster angle must be different, only that it may be different. Abbott teaches on page 302 that differing or unequal caster angles should be avoided if pull to one side is to be avoided. One having ordinary skill in the art at the time of the invention would clearly understand that a vehicle that is mostly being driven on flat farmland would benefit from equivalent caster angles.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ruth Ilan whose telephone number is 571-272-6673.

The examiner can normally be reached on Monday-Friday, 8:30-5:00.

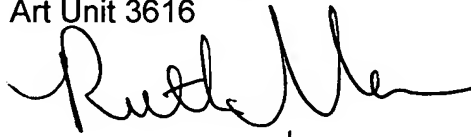
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Dickson can be reached on 571-272-6669. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RI
9/23/06

Ruth Ilan
Primary Examiner
Art Unit 3616



9/23/06